Information on registered nurses is also available from:
☛ American Nurses Association, 600 Maryland Ave. SW., Washington, DC 20024-2571. Internet: **http://www.nursingworld.org**

Respiratory Therapists

(O*NET 32302)

Significant Points

- Hospitals will continue to employ more than 9 out of 10 respiratory therapists, but a growing number will work in home health agencies, respiratory therapy clinics, and nursing homes.
- Job opportunities will be best for therapists who work with newborns and infants.

Nature of the Work

Respiratory therapists evaluate, treat, and care for patients with breathing disorders. To evaluate patients, therapists test the capacity of the lungs and analyze oxygen and carbon dioxide concentration. They also measure the patient's potential of hydrogen (pH), which indicates the acidity or alkalinity level of the blood. To measure lung capacity, therapists have patients breathe into an instrument that measures the volume and flow of oxygen during inhalation and exhalation. By comparing the reading with the norm for the patient's age, height, weight, and sex, respiratory therapists can determine whether lung deficiencies exist. To analyze oxygen, carbon dioxide, and pH levels, therapists draw an arterial blood sample, place it in a blood gas analyzer, and relay the results to a physician.

A respiratory therapist measures the oxygen in a patient's bloodstream.

Respiratory therapists treat all types of patients, ranging from premature infants whose lungs are not fully developed, to elderly people whose lungs are diseased. These workers provide temporary relief to patients with chronic asthma or emphysema and emergency care for patients who suffered heart failure or a stroke or are victims of drowning or shock. Respiratory therapists most commonly use oxygen or oxygen mixtures, chest physiotherapy, and aerosol medications. To increase a patient's concentration of oxygen, therapists place an oxygen mask or nasal cannula on a patient and set the oxygen flow at the level prescribed by a physician. Therapists also connect patients who cannot breathe on their own to ventilators that deliver pressurized oxygen into the lungs. They insert a tube into a patient's trachea, or windpipe; connect the tube to the ventilator; and set the rate, volume, and oxygen concentration of the oxygen mixture entering the patient's lungs.

Therapists regularly check on patients and equipment. If the patient appears to be having difficulty, or if the oxygen, carbon dioxide, or pH level of the blood is abnormal, they change the ventilator setting, according to the doctor's order or check equipment for mechanical problems. In home care, therapists teach patients and their families to use ventilators and other life support systems. Additionally, they visit several times a month to inspect and clean equipment and ensure its proper use and make emergency visits, if equipment problems arise.

Respiratory therapists perform chest physiotherapy on patients to remove mucus from their lungs and make it easier for them to breathe. For example, during surgery, anesthesia depresses respiration, so this treatment may be prescribed to help get the patient's lungs back to normal and to prevent congestion. Chest physiotherapy also helps patients suffering from lung diseases, such as cystic fibrosis, that cause mucus to collect in the lungs. In this procedure, therapists place patients in positions to help drain mucus, thump and vibrate patients' rib cages, and instruct them to cough.

Respiratory therapists also administer aerosols—generally liquid medications suspended in a gas that forms a mist which is inhaled—and teach patients how to inhale the aerosol properly to assure its effectiveness.

Therapists are increasingly asked to perform tasks that fall outside their traditional role. Tasks are expanding into cardiopulmonary procedures like electrocardiograms and stress testing, as well as other tasks like drawing blood samples from patients. Therapists also keep records of materials used and charges to patients. Additionally, some teach or supervise other respiratory therapy personnel.

Working Conditions

Respiratory therapists generally work between 35 and 40 hours a week. Because hospitals operate around the clock, therapists may work evenings, nights, or weekends. They spend long periods standing and walking between patients' rooms. In an emergency, therapists work under a great deal of stress.

Because gases used by respiratory therapists are stored under pressure, they are potentially hazardous. However, adherence to safety precautions and regular maintenance and testing of equipment minimize the risk of injury. As with many health occupations, respiratory therapists run a risk of catching infectious diseases, but carefully following proper procedures minimizes this risk, as well.

Employment
Respiratory therapists held about 86,000 jobs in 1998. About 9 out of 10 jobs were in hospital departments of respiratory care, anesthesiology, or pulmonary medicine. Home health agencies, respiratory therapy clinics, and nursing homes accounted for most of the remaining jobs.

Training, Other Qualifications, and Advancement
Formal training is necessary for entry to this field. Training is offered at the postsecondary level by hospitals, medical schools, colleges and universities, trade schools, vocational-technical institutes, and the Armed Forces. Some programs prepare graduates for jobs as registered respiratory therapists (RRT); other, shorter programs lead to jobs as certified respiratory therapists (CRT). According to the Committee on Accreditation for Respiratory Care (CoARC), there were 327 registered respiratory therapist programs and 134 certified respiratory therapist programs in the United States in 1999.

Formal training programs vary in length and in the credential or degree awarded. Most of the CoARC-accredited registered respiratory therapist programs last 2 years and lead to an associate degree. Some, however, are 4-year bachelor's degree programs. Areas of study for respiratory therapy programs include human anatomy and physiology, chemistry, physics, microbiology, and mathematics. Technical courses deal with procedures, equipment, and clinical tests.

More and more therapists receive on-the-job training, allowing them to administer electrocardiograms and stress tests, as well as draw blood samples from patients.

Therapists should be sensitive to patients' physical and psychological needs. Respiratory care workers must pay attention to detail, follow instructions, and work as part of a team. In addition, operating complicated respiratory therapy equipment requires mechanical ability and manual dexterity.

High school students interested in a career in respiratory care should take courses in health, biology, mathematics, chemistry, and physics. Respiratory care involves basic mathematical problem solving and an understanding of chemical and physical principles. For example, respiratory care workers must be able to compute medication dosages and calculate gas concentrations.

Over 40 States license respiratory care personnel. The National Board for Respiratory Care offers voluntary certification and registration to graduates of CoARC-accredited programs. Two credentials are awarded to respiratory therapists who satisfy the requirements: Registered Respiratory Therapist (RRT) and Certified Respiratory Therapist (CRT). All graduates—those from 2- and 4-year programs in respiratory therapy, as well as those from 1-year CRT programs—may take the CRT examination. CRTs who meet education and experience requirements can take a separate examination, leading to the award of the RRT.

Individuals who have completed a 4-year program in a nonrespiratory field but have college level courses in anatomy, physiology, chemistry, biology, microbiology, physics, and mathematics can become a CRT, after graduating from an accredited 1- or 2-year program. After they receive 2 years of clinical experience, they are eligible to take the registry exam to become an RRT.

Most employers require applicants for entry-level or generalist positions to hold the CRT or be eligible to take the certification examination. Supervisory positions and those in intensive care specialties usually require the RRT (or RRT eligibility).

Respiratory therapists advance in clinical practice by moving from care of general to critical patients who have significant problems in other organ systems, such as the heart or kidneys. Respiratory therapists, especially those with 4-year degrees, may also advance to supervisory or managerial positions in a respiratory therapy department. Respiratory therapists in home care and equipment rental firms may become branch managers.

Job Outlook
Job opportunities are expected to remain good. Employment of respiratory therapists is expected to increase much faster than the average for all occupations through the year 2008, because of substantial growth of the middle-aged and elderly population—a development that will heighten the incidence of cardiopulmonary disease.

Older Americans suffer most from respiratory ailments and cardiopulmonary diseases such as pneumonia, chronic bronchitis, emphysema, and heart disease. As their numbers increase, the need for respiratory therapists will increase, as well. In addition, advances in treating victims of heart attacks, accident victims, and premature infants (many of whom are dependent on a ventilator during part of their treatment) will increase the demand for the services of respiratory care practitioners.

Opportunities are expected to be highly favorable for respiratory therapists with cardiopulmonary care skills and experience working with infants.

Although hospitals will continue to employ the vast majority of therapists, a growing number of therapists can expect to work outside of hospitals in home health agencies, respiratory therapy clinics, or nursing homes.

Earnings
Median annual earnings for respiratory therapists were $34,830 in 1998. The middle 50 percent earned between $30,040 and $39,830 a year. The lowest 10 percent earned less than $25,910 and the highest 10 percent earned more than $46,760 a year.

Related Occupations
Respiratory therapists, under the supervision of a physician, administer respiratory care and life support to patients with heart and lung difficulties. Other workers who care for, treat, or train people to improve their physical condition include dialysis technicians, registered nurses, occupational therapists, physical therapists, and radiation therapists.

Sources of Additional Information
Information concerning a career in respiratory care is available from:
☛ American Association for Respiratory Care, 11030 Ables Ln., Dallas, TX 75229-4593. Internet: **http://www.aarc.org**

Information on gaining credentials as a respiratory therapy practitioner can be obtained from:
☛ The National Board for Respiratory Care, Inc., 8310 Nieman Rd., Lenexa, KS 66214-1579. Internet: **http://www.nbrc.org**

For the current list of CoARC-accredited educational programs for respiratory therapy occupations, write to:
☛ Committee on Accreditation for Respiratory Care, 1248 Harwood Rd., Bedford, TX 76021-4244. Internet: **http://www.coarc.com**

Speech-Language Pathologists and Audiologists

(O*NET 32314)

Significant Points

- About half work in schools, and most others are employed by healthcare facilities.
- A master's degree in speech-language pathology or audiology is the standard credential.